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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,971	11/08/2005	Hans Westmijze	13877/16301	8201

26646 7590 04/24/2009

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EXAMINER	
HUHN, RICHARD A	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
04/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,971	WESTMIJZE ET AL.	
	Examiner	Art Unit	
	RICHARD A. HUHN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☒ Claim(s) *4 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Any rejections and/or objections made in the previous Office Action and not repeated below, are hereby withdrawn.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claims 4 and 9 are objected to because of the following informalities: claims 4 and 9 are dependent upon claim 11. Claims should only be dependent upon an earlier numbered claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation of a "safely useable" amount of a first initiator. The "safely useable" amount is not defined by the claim, the specification does not provide a standard for ascertaining the requisite amount, and one

of ordinary skill in the art would not be reasonably apprised of the scope of the invention, thereby rendering the claims indefinite.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-8, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,384,155 (herein "Van Swieten"), as evidenced by the Akzo-Nobel product data sheets for Trigonox EHP and Trigonox 187 and as further evidenced by the Remarks filed by Applicant on 13 April 2009. With regard to Applicant's Remarks which are relied upon herein, it is noted that Applicant has supplied evidence regarding the prior art disclosure of Van Swieten, and not the work of

another. Reliance on such statements for both anticipation and obviousness determinations is proper, as discussed in MPEP 2129.

9. As to claim 1: Van Swieten discloses (see Experimental at column 4, and results in column 6, Table VII, the right-most column for Example F) a process for batch suspension polymerization (see col 4 line 11) of vinyl chloride (see col 4 line 25) using a first initiator (di(2-ethylhexyl) peroxydicarbonate, TRIGONOX EHP-C70, see col 6 line 21), and a second initiator (diisobutyryl peroxide, TRIGONOX 187-C30, see col 6 line 23). At the reaction temperature of the cited example (57 °C), the first initiator Trigonox EHP-C70 has a half-life of 3.1 hours, and the second initiator Trigonox 187-C30 has a half-life of 0.1 hours (see product data sheets; the half-life data is in the middle of the respective first pages).

10. Because the reference fails to disclose an "unsafe" reaction or a runaway polymerization, the examiner believes that the amount of the initiators meets the presently recited limitation of at most 90% of the safely useable amount, and furthermore that the amount of the cooling capacity used by the method of Van Swieten is inherent to the process. Van Swieten further discloses that the initiators used therein have a half-life within the presently recited range of 0.0001-1.0 hours at the reaction temperature (see abstract).

11. Van Swieten fails to specifically disclose that the second initiator is added at least partially between the start of the polymerization until 10% of the monomer has been polymerized, as it presently recited. In the communication filed by Applicant on 13 April

2009, Applicant indicates that the second initiator is added once 12% of the monomer has been polymerized (see 3rd-to last line of page 5 of Remarks).

12. Although the monomer conversion of 12% which is disclosed by Van Swieten may be greater than the presently recited conversion of 10%, it is the examiner's position that the values are close enough that one of ordinary skill in the art would have expected the same properties from the resulting reaction. Specifically, a person of ordinary skill in the art would expect that adding an initiator at a different point in the reaction would lead to predictable changes in the polymer's properties, such as molecular weight, molecular weight distribution, and processability characteristics. Case law holds that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Therefore, it would have been obvious to a person of ordinary skill at the time of the present invention to have made modifications to the initiator feed which is disclosed by Van Swieten, including adding the initiator at a slightly earlier point in the reaction, thereby arriving at the presently claimed invention.

13. Furthermore, it is the examiner's position that the point of commencement and the duration of the initiator feed are result effective variables because changing them will clearly affect the type of product obtained, including the resulting polymer's physical properties such as molecular weight, molecular weight distribution, and processability characteristics. See MPEP § 2144.05 (B). Case law holds that "discovery of an

optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

14. In view of this, it would have been obvious to one of ordinary skill in the art to utilize an initiator feed with an appropriate point of commencement and the duration, including those within the scope of the present claims, so as to produce desired end results, thereby arriving at the presently claimed invention.

15. As to claim 2: As set forth above in paragraph 9, Van Swieten discloses the monomer vinyl chloride.

16. As to claim 3: As set forth above in paragraph 9, Van Swieten discloses a suspension polymerization.

17. As to claim 5: Van Swieten discloses that the method disclosed therein may include the use of a protective colloid (see col 3 lines 53-55).

18. As to claim 6: The first initiator (TRIGONOX EHP-C70) is more stable than the second initiator (TRIGONOX 187-C30): at the reaction temperature (57 °C), the first initiator has a half-life of 3.1 hr, and the second initiator has a half-life of 0.1 hr (see col 6 line 24, and the discussion set forth above in paragraph 9).

19. As to claim 7: The amount of the second initiator used is 0.01% based on the weight of monomer (see col 6 line 28).

20. As to claim 8: The total amount of first and second initiator used is 0.06% based on the weight of the monomer.

21. As to claims 11 and 4: As set forth above in paragraph 9, Van Swieten discloses a batch suspension polymerization. The cited example in the reference includes the dosing of initiator over the course of an hour (see col 6 line 30) during the reaction. At this point in the reaction, the pressure of vinyl chloride will have already begun to drop.

22. As to claim 12: As set forth above in paragraph 17, Van Swieten discloses that the method disclosed therein may include the use of a protective colloid.

23. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Swieten as applied above, in view of US Patent No. 6,274,690 (herein "Hoshida").

24. The discussion with respect to Van Swieten as set forth above in paragraphs 9-16 and 21 is incorporated here by reference.

25. As applied above, base claim 4 is obvious over Van Swieten. Van Swieten fails to disclose a polymerization method using a reactor with a volume of 15 m^3 or larger. However, it is within the ordinary skill in the art to scale up a known reaction. It is known in the art to polymerize vinyl chloride in reactors with a volume of at least 15 m^3. For example, Hoshida discloses a method of polymerizing vinyl chloride monomer with reactors of at least 40 m^3 (see abstract). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the present invention to have scaled up the process disclosed by Van Swieten and obvious variations thereof as set forth above, including conducting such processed commercial-size reactor such as one of 15 m^3 or larger volume, thereby arriving at the presently claimed invention.

26. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Swieten.

27. The discussion with respect to Van Swieten as set forth above in paragraphs 9-14 is incorporated here by reference.

28. As to claim 10: As applied above, Van Swieten suggests the process of base claim 1. While Van Swieten fails to specifically disclose variable dosing of the first initiator in a polymerization using two initiators, Van Swieten teaches generally that the initiators may be dosed continuously (see col 2 line 67 and claim 1). It is within the ordinary level of skill in the art to adjust an initiator feed in response to reaction conditions, such as temperature, conversion, pressure, and the like. Therefore, it would have been obvious to a person of ordinary skill at the time of the present invention to have adjusted the initiator feed in the method disclosed by Van Swieten in response to reaction conditions, thereby arriving at the presently claimed invention.

Response to Amendment

29. Applicant's amendment of claims 1 and 3 to correct preferable limitations is acknowledged. Applicant's amendment of claims 4 and 9 to change the dependency is acknowledged; see however, paragraph 3 above. Applicant's presentation of new claim 10 with support from the specification (paragraph 24) is acknowledged. Applicant's presentation of new claim 11 with support from the specification (paragraphs 22 and 33)

is acknowledged. Applicant's presentation of new claim 12 with support from the specification (paragraph 6) is acknowledged.

Response to Arguments

30. Applicant's arguments, see Remarks, filed 13 April 2009, with respect to the rejection(s) of claim(s) 1-8 as unpatentable over Van Swieten have been fully considered and are persuasive. Applicant argues that the dosing of the initiator which is disclosed by Van Swieten does not meet the limitation presently recited in instant claim 1 that the second initiator is dosed at least partially between the start of the polymerization until 10% of the monomer has been polymerized. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Van Swieten, as set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD A. HUHN whose telephone number is (571) 270-7345. The examiner can normally be reached on Monday to Friday, 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. A. H./
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796